

**Tennessee Department of Environment & Conservation**  
**(Interim Guidance, August 20, 2004)**  
**Reasonable, Appropriate, Protective (RAP)**  
**Cleanup Response and Documentation Guidelines for Properties Quarantined**  
**due to Clandestine Drug Laboratory (CDL) Activities**  
**pursuant to P. Ch. 855 of the Acts of 2004.**

### **Acknowledgements**

This guidance is a distillation and incorporation of cleanup methods and procedures used in other states that are and have been impacted by clandestine drug production (Washington, Colorado, Minnesota, et. al.) Special thanks to the National Jewish Medical and Research Center for their research into the understanding as to how contaminants originate and migrate from the 'methamphetamine cooking' process. Lastly, KCI - *The Anti-Meth Site*, (formerly the Koch Crime Institute) deserves much praise for identifying and promoting meaningful strategies in crime reduction and prevention, and was a pivotal resource for this guidance.

### **Introduction**

The Tennessee General Assembly passed P. Ch. 855 of the Acts of 2004 addressing clandestine methamphetamine labs. The Tennessee Department of Environment and Conservation (TDEC) then promulgated Rule 1200-1-19 providing the standard of cleanliness and the process for professionals dealing with these sites to be placed on the lists maintained by TDEC.

This guidance is designed to assist property owners on the appropriate steps necessary to remove a quarantine order due to presence of hazardous substances and/or waste associated with the criminal production of methamphetamine, or its precursors. This guidance will also assist the Certified Industrial Hygienists (CIH) and other such persons or entities as listed by the Commissioner (*Henceforth known as the Cleanup Contractor*) to evaluate a reasonable, appropriate, and protective (RAP) Cleanup Response through examples of degrees of clandestine methamphetamine production and associated activities.

The primary goals of a RAP cleanup response are:

- Achieve a level of cleanliness that is protective of human health so a property can be deemed "Safe for Human Use".
- Document the cleanup response.

In order to achieve these goals, it is important for both the property owner and Cleanup Contractor to understand all residual health hazards posed as a result of this criminal activity. In addition, the Cleanup Contractors must be able to accurately assess the hazards, identify the appropriate cleanup procedures, and adequately photograph and document the cleanup response. Upon completion of the cleanup, the Cleanup contractor must present the property owner a copy of the documentation package of the cleanup and a letter stating that the property is now "Safe for Human Use". Further, the Cleanup Contractor must be able to know when, where, and how to contact law enforcement and environmental regulatory agencies if additional criminal or environmental support is required.

### **Principle Threat Waste and Contaminants of Concern encountered at CDL**

Residual methamphetamine and associated hazardous waste are released during the methamphetamine 'cooking' process. Airborne contaminants are absorbed into rugs, furniture, drapes, walls and other absorbing surfaces. Airborne contaminants also enter and contaminate the heating, ventilation, and air conditioning (HVAC) system. Spills are common and impact floors, walls, appliances, and other surfaces. Hazardous waste is also dumped into sinks, toilets, and bathtubs and leave contamination in the waste water system. Law enforcement and multiple health agencies found that levels of iodine, phosphine, and hydrochloric acid are likely to exceed current occupational standards during a cook using the red phosphorous method. Hydrochloric acid levels were especially high during the final "acidification stage," often exceeding the NIOSH "Immediately Dangerous to Life and Health" level. Large

amounts of methamphetamine are also released into the air and deposited on most items and on horizontal and vertical surfaces throughout the building. 'Cooking' can release as much as 5,500 micrograms of methamphetamine per cubic meter into the air, and deposit as much as 16,000 micrograms per 100 square centimeters onto surfaces. With this base insight into the potential hazards associated with the clandestine methamphetamine laboratory process, it is clear that both residual methamphetamine and hazardous waste generated during the manufacturing process pose a threat to human health, and render the property 'Unsafe for Human Use'.

The Principal Threat Waste (PTW) and Contaminants of Concern (COC) resulting from the manufacturing process may be in the form of corrosive waste sludge and /or as residues of a variety of volatile organic compounds (VOCs), metals, acids and bases. Some of the chemicals used in the process include but are not limited to hydriodic acid, hydrochloric acid, sulfuric acid, sodium hydroxide, red phosphorus, hydrogen peroxide, naphtha, charcoal lighter fluid, freon, chloroform, acetone, benzene, toluene, ethyl ether, acetic acid, methyl-ethyl-ketone, hypophosphorus acid, yellow phosphorus, anhydrous ammonia, lithium, sodium, isopropyl alcohol, ethyl alcohol, and methanol. The residual COC and PTW may be contained in or on absorbent materials, ceiling tiles, walls, floors, counter-tops, appliances, children toys, linen, drapes, furniture, mattresses, clothing, soil, waste water systems, HVAC systems, range vent hoods, etc. For more information on the hazards associated with the chemicals see Attachment A.

### **Fate and Transport of COC and PTW**

When a methamphetamine lab is in operation, hazardous chemicals are usually released. These releases can range from vapors seeping through walls and being pulled through ductwork, to spills soaking into porous materials, or disposal activities of waste materials inside and outside of the structure.

The acid vapors, solvents, methamphetamine, drug byproducts and other vapors can redeposit on and in insulation, wallboard, carpet, ductwork, furniture, appliances or almost any other surface. Once re-deposited, the residues can be tracked out the door on shoes or clothing. Some of the chemicals can volatilize once again when humidity and temperature conditions change. Depending upon concentration, this could possibly cause an inhalation or flammable hazard. In addition, vapors containing methamphetamine, its byproducts, volatile organic compounds (VOC), metals, acids, and bases will generally travel together within a dwelling.

After adequate ventilation of contaminated areas, most solvent vapors will not pose an immediate threat to human health. Solvents tend to evaporate easily and dissipate when ventilated. For most of these solvents, the physical law of conservation of mass requires a substantial spill or continuing source for them to maintain a toxic concentration over a long period of time. Similarly, phosphine gas, a highly toxic byproduct, is a concern during and shortly after the actual 'cook'. However, since it is so reactive and dissipates rapidly it is not likely to have a long residence time when the structure ventilated adequately.

Spills are very common in methamphetamine labs. Solvents, ammonia, red phosphorous, iodine and other chemicals can leave hazardous vapors or residues on either hard or porous surfaces. Those on porous surfaces can have considerable residence times. Like residues from vapors, the residues from spills can be tracked from place to place on shoes, clothing, toys, and other items of people present during cooking or cleanup. Spills may also be a persistent source of volatile chemicals. Spill areas should be targeted for removal or thorough cleaning.

The primary route of disposal for PTW is the waste water system. Sinks and toilets provide a tempting route of disposal for the large amounts of byproducts (hazardous waste sludge) that result from drug production. The sludge in turn frequently clogs p-traps and toilets making the waste water system inoperable, and possibly contaminating the septic field depending on degree of drug production. Fortunately, many of the microorganisms in a septic system can break down the hazardous chemicals. If on-the-other-hand the amount of drug production is great or the lab has been operating for an extended period of time, extreme pH conditions or large amounts of solvent may overwhelm it which will require the system to be remediated by informed professionals. Municipal sewer systems can take these by-products miles from the clandestine lab. Fortunately, this transport action within a municipal sewer system has a tendency to dilute the problem, so for many cases a simple notice of the problem to the sewer authority may be a sufficient remedial action.

Another key transport mechanism in methamphetamine labs is the heating, ventilation and cooling (HVAC) system. Intakes from the HVAC or other air duct systems can pull in hazardous vapors and redistribute them to every room attached to the system. Residues can accumulate in ductwork, filter and blower mechanism (typically at low temperature and low air movement) and then off-gas later (typically at high temperature and high movement). Depending on Tiered response, a cleaning of the ductwork and blowers is appropriate, and filter replacement should be considered during a methamphetamine lab remediation.

Below are examples of chemicals that may be encountered, the transport mechanisms, location of contaminants, and its persistence on the quarantined property.

- **Anhydrous Ammonia** - tends to evaporate - does not tend to leave a residue - easily removed by ventilation
- **Phosphine gas** - always in gaseous form - reacts with other chemicals in the environment and degrades rapidly - dissipates with ventilation
- **Methamphetamine** - vaporizes during production and deposits as residue - resides as residue on surfaces - may be persistent on surfaces
- **Acids** - released as vapor during production or as a spill - deposited as residue - reside on surfaces until wetted long residence time
- **Solvents** - released as vapor during production or spilled - absorb into porous surfaces and evaporate over time - persistence is related to spill volume, the extent of perfusion into porous materials, and environmental conditions
- **Red Phosphorous** - released as spill - resides as residue - indefinitely
- **Iodine** - released as spill - resides as residue - indefinitely
- **Lead** - released as vapor or as spill - resides as residue or dust - infinite residence
- **Mercury** - released as vapor or as spill - resides as metallic residue or as a gas indefinite residence time.
- **Lithium** - released as spill or battery pieces - resides in spill residue or metallic chunks, infinite residence
- **Alkalis** (Lye) - released as spill, resides as residue or dried spill, indefinite residence
- **Alcohols** (methanol) - released as spill - absorb into porous surfaces and evaporate over time - persistence is related to spill volume, the extent of perfusion into porous materials, and environmental conditions

### Standards of Cleanliness

Rule 1200-1-19 provides the following standards of cleanliness for sites used to manufacture methamphetamine:

- **Methamphetamine:** Shall not exceed 0.1 micrograms /100 square centimeters
- **Volatile Organic Chemicals (VOC):** Shall not exceed 1 part per million (ppm) total hydrocarbons and VOCs in air under normal inhabitable ventilation conditions.
- **Mercury\*:** Shall not exceed 50 nano grams per cubic meter of air under normal inhabitable ventilation conditions.
- **Lead\*:** Shall not exceed 40 micro grams per square foot

*\* - When it is determined that the Amalgam (P2P) process was not used these standards do not apply.*

### Analytical Methodology

The current EPA SW-846 analytical methods used to detect methamphetamine is 8270C-Modified, for lead the method is 6020, and for mercury the method is 7471A. TDEC recognizes that science and technology are constantly refining analytical procedures and instrumentation. Therefore, any proven and defensible analytical methodology / technology that has a detection level lower than the 'Standards of Cleanliness' numbers can be employed. These alternate analytical methods must be thoroughly documented to ensure that data results are defensible. A photo-ionization detector (PID) can be used for VOC determinations. The correct lamps must be used and the instrument calibrated prior to screening of the VOC. The calibration of the instrumented must be documented. Normal visual

acuity can be used for determining if items are stained or discolored. Litmus paper can be used to ascertain if acid / caustic residues are present.

### **Sampling Strategy and Methodology**

In conference with other states that have experience with these cleanup actions, TDEC has noted that it is much more cost effective for the property owner and the Cleanup Contractor to make the assumption that contamination is present when a 'methamphetamine cook' has occurred, than it is to spend money to prove contamination is not via pre-sampling determinations. Money spent on pre-sampling events and evaluation is better spent towards the cleanup action and replacement of furnishings. With the exception of screening samples (e.g. - VOCs in air, staining and pH of various surfaces), sample collection should be performed after the cleanup action is completed. This type of sampling is called confirmatory. It confirms that the cleanup response addressed all contamination sources.

Confirmatory sampling is preferred because this type of sampling is the most cost effective and defensible. When a Tiered Response cleanup action is implemented correctly, all contaminated surfaces should be removed, washed, and or sealed to prevent risk of exposure. Confirmatory sampling will determine if the cleanup action was successful.

Confirmatory air samples must be acquired under normal HVAC operations from locations that exhibited the highest screening detections. Surface samples must be taken from surface areas that were not replaced and must target areas that exhibited the highest screening values or visual contamination noted during the inspection. The number of confirmatory samples to determine compliance is left to the 'Best Professional Judgment' of the CIH employed to certify the living space as 'Safe for Human Use'. The rationale why the number of sample taken and their location should be included in the final report. Procedures for collecting wipe samples are given in Appendix C.

COLLECTION OF NON-POROUS SURFACE SAMPLES (WIPE SAMPLES)

### **Recommended Methamphetamine Cleanup Resources**

To assist property owners and Cleanup Contractors in furthering their understanding of potential hazards associated with these Clandestine Methamphetamine Laboratories, the following URLs are provided as additional resources. TDEC's strongly suggests that property owners and Cleanup Contractors review these resources before undertaking cleanup responses.

KCI, *The Anti-Meth Site*

[http://www.kci.org/meth\\_info/links.htm](http://www.kci.org/meth_info/links.htm)

National Jewish Medical and Research Center

[http://nationaljewish.org/news/meth\\_results.html](http://nationaljewish.org/news/meth_results.html)

Washington State Department of Health

<http://www.doh.wa.gov/ehp/ts/CDL.HTM>

Colorado Department of Health and Environment

<http://www.cdphe.state.co.us/hm/methlab.pdf>

<http://www.cdphe.state.co.us/hm/methlabfactsheet.pdf>

Minnesota Department of Health

<http://www.health.state.mn.us/divs/eh/meth/cleanup0903.pdf>

Missouri

<http://www.dhss.state.mo.us/ResourceMaterial/meth.pdf>

### **Tiered Response Scenarios for RAP Cleanups**

In surveying the types of crime scenes encountered by law enforcement, TDEC has noted that affected properties fall into 4 degrees, or tiers of criminal methamphetamine production. The degree of methamphetamine production directly influences the degree of potential contamination that may be encountered at one of these quarantined properties. In turn, the degree of potential contamination will directly impact the amount of sampling, removals, and

cleanup procedures necessary to return the property to its appropriate reuse. Thus releasing the property from quarantine.

The following tiered response scenarios provide examples for reasonable, appropriate and protective cleanups of properties that have been quarantined as a result of the presence and or potential release of hazardous substances used in the criminal production of methamphetamine. Prior to any cleanup action the following activities must have occurred:

1. **All criminal investigations of the Crime Scene are completed and permission to enter property from the designated Chief Law Enforcement Officer (CLEO) has been secured.**
2. **All lab process related chemicals, waste, and paraphernalia have been removed and documented by law enforcement and their response contractors. See attachment B.**
3. **A Certified Industrial Hygienists (CIH) and other such person or entity as listed by the Commissioner has been contracted.**
4. **The initial assessment and inspection of the quarantined property by the Cleanup Contractor has been performed, appropriate PPE for cleanup workers has been selected, and the Hazard Assessment and Scope of Work for the appropriate Tiered Response is completed and communicated to cleanup workers.**

**Tier 1 Response** - (*Abandonment or ‘spooked-cook’ scenario.*)

An example of when a Tier 1 scenario is appropriate is when the crime scene evidence and site inspection and assessment indicate that no production of methamphetamine or its precursors have occurred, and no stains, or significant spills are noted. Remember that the base assumption is the release of contaminants is non-existent to very minimal.

Even though contamination may not be clearly visible, TDEC believes a cleanup response is prudent. Individuals involved in this criminal activity are usually contaminated with various hazardous chemicals from previous ‘cooks’. It is on their shoes and clothing, in their hair and on skin, and other paraphernalia that was brought onto the premises. Additionally, there is a potential that the drug may have been used (smoked) on the premises to some degree. Since there is a potential for incidental contamination to have occurred, TDEC highly recommends that a good cleaning of the property is in order, and it needs to be documented.

**At a minimum a typical cleanup would involve the following:**

- Document and photograph the cleanup action.
- Prior to confirmatory air sampling for a cleanup response, remove all ancillary volatile and semi-volatile chemical sources that may be located on the premise not associated with the lab process, then heat and ventilate premise for 72 hours prior to cleanup. (*Examples of VOC sources include: automotive gas, propane, automotive cleaners, aerosols, dry cleaned clothing, etc. If this task is not performed, then false positive for VOC air samples may occur.*)
- If a minor spill is noted during the assessment (*e.g. If a can of VOC leaked on counter top or floor.*), then the Cleanup Contractor should target that area for an appropriate and thorough cleaning.
- Screen air for VOCs. Representative air samples must be acquired while normal, inhabitable HVAC ventilation is occurring.
- Since contact with hazardous materials or substances is not suspected nor anticipated for a Tier 1 Cleanup Response, HAZWOPER certification for cleanup workers may not be necessary. This is a judgment call for the Cleanup Contractor to make.
- Using appropriate PPE, the cleanup workers shall thoroughly clean all hard surfaces with appropriate cleansers. Commercially shampoo rugs, steam clean mattress and cloth furniture, and have bed linens and drapes commercially laundered. Secure cleaning receipts for documentation purposes. Have cleanup workers sign off on cleanup checklist that work was performed.
- Collect any clothing or items left behind by the clandestine lab operator or their family and render unserviceable\*, and discard them. This step must be photo documented. Because these articles of clothing and toys have the potential to be heavily contaminated with COC they are not to have the potential to be reused. Please remember the old saying; “One man’s trash is another man’s treasure.”
- Since removal and replacement of appliances is not anticipated, wash and clean all appliances thoroughly.

- After cleanup is accomplished, ventilate property for 72 hours. If appropriate, use litmus paper to target areas of potential concern.
- After completion of cleanup, acquire confirmatory samples to determine if site meets Standard of Cleanliness.
- Prepare documentation and certify that property is 'Safe for Human Use' The documentation package shall include all reports noted in "*Documentation Requirements:*"

\* - *Render unserviceable* – TDEC views this term to mean that items must be destroyed to such a degree that it can no longer be used for its intended purpose. For example: Children clothing must be cut in to pieces or burned. An appliance must be cut in half. Carpet must be cut in to small pieces.

**Tier 2 Response** - (*Motel/Hotel 'transient-cook' scenario.*)

An example of when this scenario is appropriate is when the crime scene evidence and site inspection indicate that production of methamphetamine or its precursors have occurred to a limited degree, and / or moderate staining and or spills of hazardous substances were noted.

**At a minimum a typical cleanup would involve the following:**

- Where applicable/appropriate, follow all cleaning procedures in Tier 1.
- This Tier differs from Tier 1 Responses in that additional impacted fixtures and materials will need to be removed, rendered unserviceable, and disposed of appropriately.
- Alternatively heat and ventilate property for a minimum of 8 days. Remember to remove all potential VOC sources on the property.
- Trained technicians shall perform removals, render items unserviceable, and dispose of items appropriately.
- If appliances and fixtures are stained and contaminated to the point that successful cleaning is in doubt, then render appliances and fixtures unserviceable and remove.
- Absorbent surfaces (e.g. drop ceilings surrounding and proximal to 'cook', mattresses, pillows, carpets, and clothing) shall be rendered unserviceable and removed.
- All potential process related stained surfaces and items shall be rendered unserviceable and removed.
- Where appropriate, the removed items are to be documented and manifested to Special Waste landfill facilities.
- All non-stained hard surfaced are to be washed with appropriate cleaners.
- Where appropriate, all washed hard surfaces are to be painted or sealed.
- All other absorbent surfaces (e.g. – linens, drapes) are to be commercially cleaned twice.
- Cloth furniture is to be commercially steam cleaned twice.
- Replace air filters in HVAC, and commercially clean ventilation duct works.
- After completion of cleanup, acquire confirmatory samples to determine if site meets Standard of Cleanliness.

**Tier 3 Response** - (*Rental Property 'entrenched cook' scenario.*)

An example of when this scenario is appropriate is when the crime scene evidence and site inspection indicates that production of methamphetamine or its precursors has occurred and were produced over an extended period of time, or gross staining and spills of hazardous substances are noted on interior surfaces, or indoor air quality is affected.

**At a minimum a typical cleanup would involve the following:**

- Ventilate property for a minimum of 2 week.
- Where applicable, follow all cleaning responses in Tier 1 and 2. (Be advised that contact with residual hazardous substances or waste is possible.)
- Remove all porous and absorbent materials and render unserviceable.
- Remove all stained materials and render unserviceable.
- Remove all impacted appliances and fixtures and render unserviceable.

- All Subsurface construction material must meet Standard of Cleanliness prior to reconstruction, if not remove and render unserviceable.
- All surfaces, not replaced, must meet Standard of Cleanliness after cleanup.
- Removed items are to be documented and manifested to Special Waste facilities.
- If hazardous waste is present, then it must be manifested to Hazardous Waste facilities.

**Tier 4 Response** – (*The ‘mass-production cook /drugs-for-profit’ Super lab scenario.*)

An example of when this scenario is appropriate is when the crime scene evidence and site inspection indicate that long-term production of methamphetamine or its precursors has occurred, gross staining and contamination of interior and or surfaces are observed, or indoor and / or outdoor air quality are affected, or evidence suggests that numerous spills, releases, disposals and burials of hazardous substances and waste have been or are present on the property that represent a threat to the environment. Other states have referred to these types of CDL sites as Super labs.

**At a minimum a typical cleanup would involve the following:**

Please note that prior to any cleanup response for a Tier 4 scenario, when it is determined that hazardous substances or waste are present in such quantities that a regulatory oversight may be required under TDEC Hazardous Waste Rules, coordination with TDEC for the appropriate oversight of hazardous waste characterization, disposal, and cleanup activities is necessary prior to any cleanup response. TDEC does not foresee Tier 4 Responses being very common, but recognizes that the possibility exists.

**How to get started with a RAP Response:**

1. When should the RAP response for quarantined properties begin? When the criminal investigation authorities have decided that the crime scene is no longer necessary for evidence collection, and approval to enter the quarantined property has been secured in writing from the designated CLEO by the property owner.
2. Property owners should contact a Cleanup Contractor within 60 days of the property being released for cleanup.
3. The Cleanup Contractor shall secure certified copies of Appendix B. (Law Enforcement / First Responder Crime Scene Report).
4. After reviewing the information contained in Appendix B, the Cleanup contractor will inspect the quarantined property and assess all potential hazards and assign the appropriate Tiered RAP Cleanup Response to the quarantined property. Justification for the Tier assignment must be supplied.
5. The Cleanup Contractor will develop an appropriate Scope of Work (SOW) for cleanup activities based on the Tier Response. During this step appropriate PPE for the protection of the cleanup workers will be assigned. This step is very important because it is the cleanup workers that will have the greatest potential to be exposed to PTW and COC at these properties.
6. The Cleanup Contractor shall verify and document that all cleanup work was performed according to the SOW. If removal and disposal of contaminated media requiring Special Waste or Hazardous Waste manifesting is necessary, then this activity must be approved by the appropriate regulatory agency, and documented in a Transportation and Disposal Plan.

**Documentation Requirements**

1. After the cleanup response is completed, the Cleanup Contractor shall submit a written report along with before-and-after photo documentation of all cleanup activities. This report will also include the SOW for the appropriate Tier Designation along with the justification why this response was chosen, a certified copy of Appendix B, site sketches, photos, and manifests, etc. In addition, if a removal activity occurred during the cleanup response the Transportation and Disposal Plan must be included. Be advised, when it comes to the defensibility of any documentation package of this type, photograph and document the activities adequately.
2. In addition to the above report and supporting documentation, the Cleanup Contractor shall submit a letter certifying that the quarantined property has been cleaned up and that all risks and hazards resulting from

criminal methamphetamine production have been abated, and that the property is 'Safe for Human Use'. This letter is to be attached to the front of the document package.

3. The property owners are to keep a certified copy of this documentation for a minimum of 5 years, and / or for future property transfers.



## Appendix A. Chemicals and Hazards associated with Methamphetamine Production.

Typical Chemicals Found in Lab Sites	Common Legitimate Uses	Poison	Flammable	Toxic Vapors	Explosive	Corrosive	Skin Absorption	Common Health Hazards
Acetone	Fingernail polish remover, solvents	X	X	X			X	Reproductive Disorders
Methanol	Brake cleaner fluid, fuel	X	X	X			X	Blindness, eye damage
Ammonia	Disinfectants	X		X		X	X	Blistering, lung damage
Benzene	Dye, varnishes, lacquers	X	X		X	X	X	Carcinogen, Leukemia
Ether	Starters fluid, anesthetic	X	X		X			Respiratory
Freon	Refrigerant, propellants	X		X		X		Frostbite, Lung damage
Hydriodic Acid	Driveway cleaner	X		X		X	X	Burns, Thyroid damage
Hydrochloric Acid (Hcl gas)	Iron ore processing, mining	X		X		X	X	Respiratory, Liver damage
Iodine Crystals	Antiseptic, Catalyst	X	X		X	X		Birth defects, Kidney failure

Appendix A. (Continued)

Chemicals and Hazards associated with Methamphetamine Production.

Typical Chemicals Found in Lab Sites	Common Legitimate Uses	Poison	Flammable	Toxic Vapors	Explosive	Corrosive	Skin Absorption	Common Health Hazards
Lithium Metal	Lithium batteries	X				X	X	Burns, Pulmonary edema
Muriatic Acid	Swimming pool cleaners	X		X		X		Burns Toxic vapors
Phosphine Gas	Pesticides	X		X			X	Respiratory failure
Pseudophedrine	Cold medicines	X						Abuse: Health damage
Red Phosphorus	Matches, fireworks	X	X	X	X			Unstable, flammable
Sodium Hydroxide	Drain cleaners, lye	X		X		X	X	Burns, skin ulcers
Sulfuric Acid	Battery acid	X		X		X	X	Burns, thyroid damage
Toluene	Paint thinners, solvents	X	X	X	X		X	Fetal damage, pneumonia
Liquid Lab Waste	None	X	X	X	X	X	X	Unknown long term effects

This information was obtained from the Division of Environmental Health, Office of Environmental Health and Safety, Washington State. <http://www.doh.wa.gov/ehp/ts/CDL/methhazards.htm>

## Appendix B. Law Enforcement / First Responder Crime Scene Report

In order for cleanup teams to work safely and cost effectively the following information needs to be provided by Law Enforcement Personnel and their First Responder Contractor.

1. Take pictures of all chemicals and waste noted at the Crime Scene.
2. Draw a site sketch that notes where chemicals, stains, and spills were observed.
3. Provide any contaminant data acquired. (e.g. VOC readings, pH tests, Haz Cat results)
4. Include copies of any Hazardous Waste or Special Manifests, if available.
5. Make sure all questions are answered below, even if it is a "Does not apply" statement.
6. Briefly describe the Crime Scene without divulging criminal evidence necessary for prosecution.
7. Please sign and date this form and initial all questions.

Does the crime scene evidence suggest that production of methamphetamine or its pre-cursors occurred on this property? (Yes / No)

1. If no, reference Tier 1 scenarios. For an example: This is an abandonment of chemicals, or the 'cook' got spooked and no production of methamphetamine or its precursors occurred.

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2. If yes, to what degree of methamphetamine was produced?

- i. The evidence suggests that a very limited amount was produced over a relative short period of time (less than 3 to 4 days) Reference Tier 2 Scenarios for examples.

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- ii. The evidence suggests that methamphetamine was produced periodically over an extended period, (greater than a week) Reference Tier 3 Scenarios for examples.

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- iii. The evidence suggests that large amounts of methamphetamine were produced, or large amounts of hazardous waste were noted in and around the property. Reference Tier 4 Scenarios for examples.

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3. If yes, what laboratory process/method was used to produce the Methamphetamine?

- i. P2P / Amalgam Method
- ii. Red Phosphorus Method
- iii. Birch Method
- iv. If process/method is unknown, what chemicals and quantities were removed?

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Investigator

Date

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First Responder Contractor

Date

## Appendix B. Law Enforcement / First Responder Crime Scene information

(Continued)

**Briefly describe any information not noted on the previous page about contaminants and wastes found at the crime scene that could be helpful to cleanup workers without divulging criminal evidence necessary for prosecution.**

This image shows a single sheet of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

**I am the lead investigator and / or First Responder Contractor of this crime scene. The above information contained within is accurate to the best of my / our knowledge.**

Date

## **Appendix C. COLLECTION OF NON-POROUS SURFACE SAMPLES (WIPE SAMPLES)**

To determine the extent of contamination on non-porous surfaces (tile, linoleum and formica), a technique known as “wipe” sampling is used. On porous areas, such as carpet or drapes, this sampling technique is only satisfactory for a qualitative (absence or presence) identification of the chemical. Paper filters are generally used for collection of metals. Mixed cellulose ester filter discs (AA filters) or smear tabs, or their equivalent, are most often recommended. Polyvinyl chloride filters are available for substances that are unstable on paper-type filters. Squares of a gauze material may be used for many organic substances, and have the advantage of being more durable than filter media, especially when wiping rough surfaces. They may be used dry, or wetted with water or solvent to enhance collection efficiency.

The following procedure is recommended for collecting wipe samples:

1. If multiple samples are to be taken at the worksite, prepare a rough sketch of the area to be wipe sampled.
2. A new set of clean, impervious gloves should be used for each sample to avoid contamination of the filter by previous samples (and the possibility of false positives) and to prevent contact with the substance.
3. Withdraw the filter from the vial with your fingers or clean tweezers. If a damp wipe sample is desired, moisten the filter with distilled water (lead samples) or other solvent (methanol for meth samples) as recommended.
4. Depending on the purpose of the sample, it may be useful to determine the concentration of contamination (e.g., in micrograms of agent per area). For these samples, it is necessary to record the area of the surface wiped (e.g., 1 ft<sup>2</sup>). This would normally not be necessary for samples taken to simply show the presence of the contaminant.
5. Firm pressure should be applied when wiping.
6. Start at the outside edge and progress toward the center of the surface area by wiping in concentric squares of decreasing size.
7. Without allowing the filter to come into contact with any other surface, fold the filter with the exposed side in. If possible, use the same filter to repeat the sampling of the same area, then fold it over again. Place the filter in a sample vial, cap and number it, and note the number at the sample location on the sketch. Include notes with the sketch giving any further description of the sample.
8. At least one blank filter treated in the same fashion, but without wiping, should be submitted for each sampled area.

This information was obtained from the Colorado Department of Health and Environment

<http://www.cdphe.state.co.us/hm/methlab.pdf>